MIKUSINSKIY, J.

Mikusiński, J. Sur l'équation $x^{(n)} + A(t)x = 0$. Ann. Po-
lon. Math. 1 (1955), 207-221.

The author discusses the differential equation in the
title, and provides theorems on the nature of certain
solutions. There are difficulties with Théorème 11 and its
corollary. In the former, the author appears to assume
that the limit of a sequence of continuous functions which
are positive on $a < x < b$ and zero at a and at b necessarily
has the same properties. This objection appears to be
non-trivial when $n=4$, for example. The conclusion of
Corollaire 3 is incorrect, as the example $x^{(4)} + 4x = 0$
shows. Indeed, the solution defined by $x(0) = x'(0) =
x''(0) = 0$, $x'''(0) = 1$ may be readily seen to have its first
positive zero at the first positive zero of the equation
$\tanh t = \tan t$. This zero is approximately 3.926, whereas
the corollary states it must be $\leq 2\sqrt{\pi}$.   W. Leighton.

1-F\W

2

MIKUSINSKI, J.

1 - F/W

Mikusiński, J. On *Dirichlet series* with complex exponents. Ann. Polon. Math. 2 (1955), 254–256 (1956).

In this paper the author is concerned with series of the form $\sum a_n e^{-\beta_n s}$ where the coefficient sequence $\{a_n\}$ and the exponent sequence $\{\beta_n\}$ are complex numbers subject to the limitation $\lim (\beta_n'/\log n) = \infty$ and where $\beta_n' = \mathrm{Re}(\beta_n)$. The classical theory of Dirichlet series is concerned with such series for the case in which the sequence $\{\beta_n\}$ is a sequence of positive real numbers strictly increasing to infinity. Since there are no references we assume the author is unaware that this problem has been studied previously. Hille [Ann. of Math. (2) 25 (1924), 261–278] and Ritt [Trans. Amer. Math. Soc. 18 (1917), 27–49] have each proven theorems which would seem to include those of the author. Also the author states that the region of convergence of $\sum a_n e^{-\beta_n s}$ is convex. However Schnee [Thesis, Berlin, 1908] has given an example of such a series with an isolated point of convergence. The author shows (as did Hille) that the region of absolute convergence is a convex set. If this set is two-dimensional then the series represents a single-valued analytic function in the region.   *V. F. Cowling* (Lexington, Ky.).

Mikusiński, J. Une définition de distribution. Bull.
Acad. Polon. Sci. Cl. III. 3 (1955), 589–591.

Distributions of finite order are here defined as classes of
equivalent fundamental sequences of functions continuous
on $-\infty < x < \infty$: $f_n(x)$ is fundamental if there exists an
integer k and functions $F_n(x)$ such that (a) $f_n(x) =
F_n^{(k)}(x)$ (kth derivative in the ordinary sense) and (b)
$F_n(x)$ converge uniformly on each finite closed interval;
sequences f_n, g_n are equivalent (and define the same
distribution) if for some k, $f_n = F_n^{(k)}$, $g_n = G_n^{(k)}$ and F_n,
G_n converge uniformly on each finite closed interval to
the same limit. The author is unaware that this definition
has been formulated independently by J. Korevaar [see
the following review and papers cited there].
                                    I. Halperin (Kingston, Ont.).

Korevaar, Jacob. Distributions defined by fundamental
    sequences. V. Integral of a product. Fourier series.
    Connection with Schwartz' theory. Nederl. Akad.
    Wetensch. Proc. Ser. A. 58 = Indag. Math. 17 (1955),
    663–674.
    This article concludes an interesting and readable
exposition [for parts I–IV see same Proc. 58 (1955), 368–
378, 379–389, 483–493, 474–503; MR 17, 63, 354] of
distributions, defined as limits of sequences of functions.

Mikusiński, J.

Equivalence is shown between this definition and the Schwartz definition (linear functionals on a space of testing functions). The proof of equivalence, and most of the theory of the present exposition, are close to material contained in the books of Schwartz but the definition of definite integral $\int_a^b T\,dx$ (for some distributions T) appears to be new [cf. the following review]. Here $\int_a^b T\,dx = G(b) - G(a)$ whenever (i) $T = G'$ and (ii) G coincides with a continuous point function locally at a and locally at b. Integration by parts, and Hadamard finite parts, are discussed for definite integrals of distributions.

Fourier series are also discussed for all distributions on $(0, 2\pi)$, using definite integrals of distributions.

I. Halperin (Kingston, Ont.).

Łojasiewicz, S.; Wloka, J.; und Zieleźny, Z. Über eine Definition des Wertes einer Distribution. Bull. Acad. Polon. Sci. Cl. III. 3 (1955), 479–481.

The following results are announced (proofs to appear in Rozprawy Matematyczne). Let $f = f(x)$ denote a distribution. I. The distribution-limit: $\lim_{\varepsilon \to 0} f(\varepsilon x + x_0)$, if it exists, is a constant function (coincides with $f(x_0)$ if f is, in a neighborhood of x_0, a point function continuous at

Mikusiński, J. $f^-(x_0)$. This limit is called the value of f at x_0, denoted $f(x_0)$ (definition attributed to S. Łojasiewicz). $\int_a^b f(x)dx$ is defined to be the value at 0 (if this exists) of distribution $(F(x+b)-F(x+a))$ with $F'=f$. II. If $F'=f$ and f has a value at x_0 then so does F. III. If f has values at a and b, then $\int_a^b f(x)dx$ is defined. IV. $\int_0^{2\pi} f(x)dx$ is defined if $f(x+2\pi)=f(x)$; and $f(x)=\sum_{-\infty}^{+\infty} c_n e^{inx}$ with $c_n=(2\pi)^{-1}\int_0^{2\pi} f(x)e^{-inx}dx$ [cf. the preceding review].   *L. Halperin.*

Zielezny, Z. Sur la définition de Łojasiewicz de la valeur d'une distribution dans un point. Bull. Acad. Polon. Sci. Cl. III. 3 (1955), 519-520.

On the real line $-\infty<x<\infty$ let $f=f(x)$ denote a locally summable function, F a distribution and $\varphi(x)$ a continuous function possessing derivatives of all orders and vanishing outside some finite interval. For fixed a and $\alpha\neq 0$ define $f^{\alpha,a}$, $F^{\alpha,a}$ and $\varphi_{\alpha,a}$ as follows:

$$f^{\alpha,a}(x)=f(\alpha x+a),\quad \varphi_{\alpha,a}(x)=\frac{1}{\alpha}\varphi\left(\frac{x-a}{\alpha}\right)\ \text{and}\ F^{\alpha,a}(\varphi)=F(\varphi_{\alpha,a})$$

for all φ. If F coincides with a function f then $F^{\alpha,a}$ will coincide with $f^{\alpha,a}$. Always

$$(F^{\alpha,a})'=\alpha(F')^{\alpha,a},\quad (F^{(k)})^{\alpha,a}=\frac{1}{\alpha^k}(F^{\alpha,a})^{(k)};$$

if $F=f^{(k)}$, then $F^{\alpha,a}=\alpha^{-k}(f^{\alpha,a})^{(k)}$.

MIKUSIŃSKI, J.

Theorem (attributed to S. Łojasiewicz, see the 2nd preceding review). If $\lim_{\epsilon \to 0} F^{\epsilon,a}$ exists as a distribution T then T is a constant function (if $F = f$ and $f(x)$ is continuous at a, then T does exist and its constant value is $f(a)$).
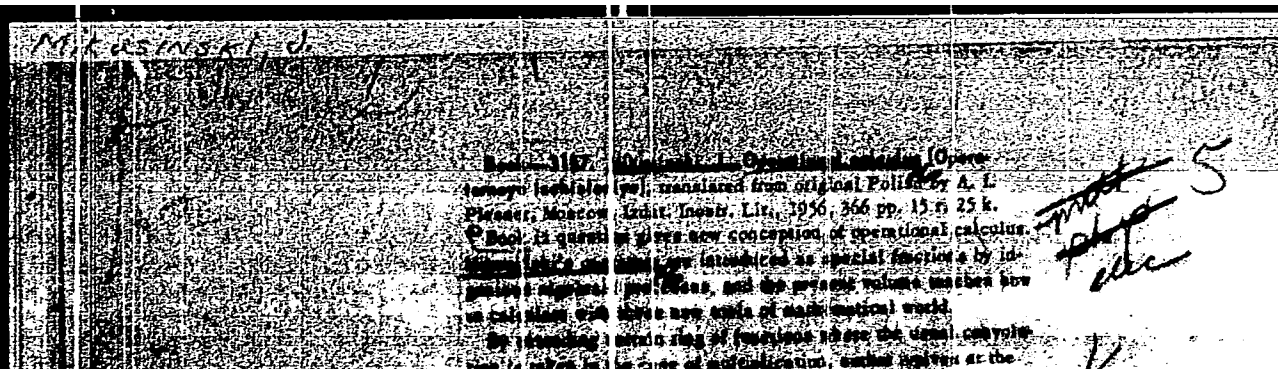
Proof. $T^{\lambda,a} = T$ for all $\lambda \neq 0$ follows easily from the definition of T. Hence T is of finite order, $T = g^{(k)}$ for some continuous function $g(x)$ and some integer k and

(*) $\quad \lambda^k g(x) - g(\lambda x) = a_0(\lambda) + a_1(\lambda)x + \cdots + a_{k-1}(\lambda)x^{k-1}$

a polynomial of degree $\leq k-1$. The author succeeds in showing that $a_i(\lambda)$ is of the form $c_i(\lambda^i - \lambda^k)$ and hence that $g(x)$ is a polynomial of degree $\leq k$. This implies that $T = g^{(k)} = $ constant function.
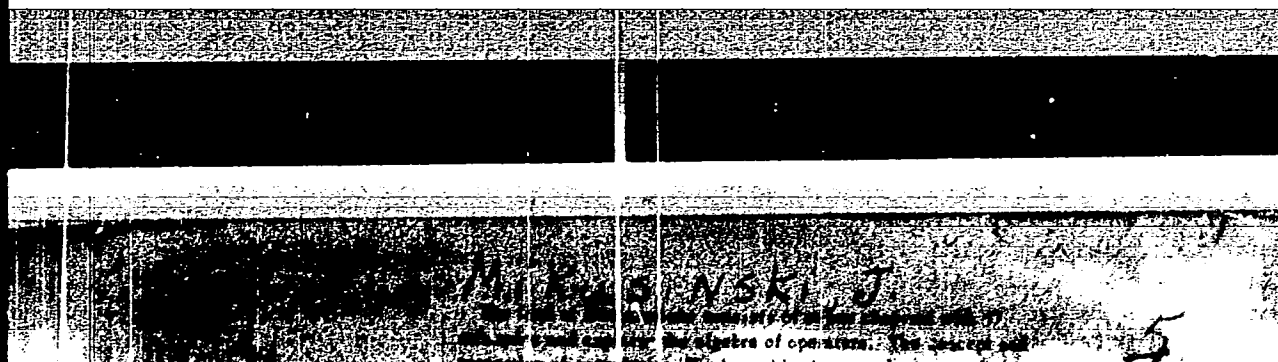
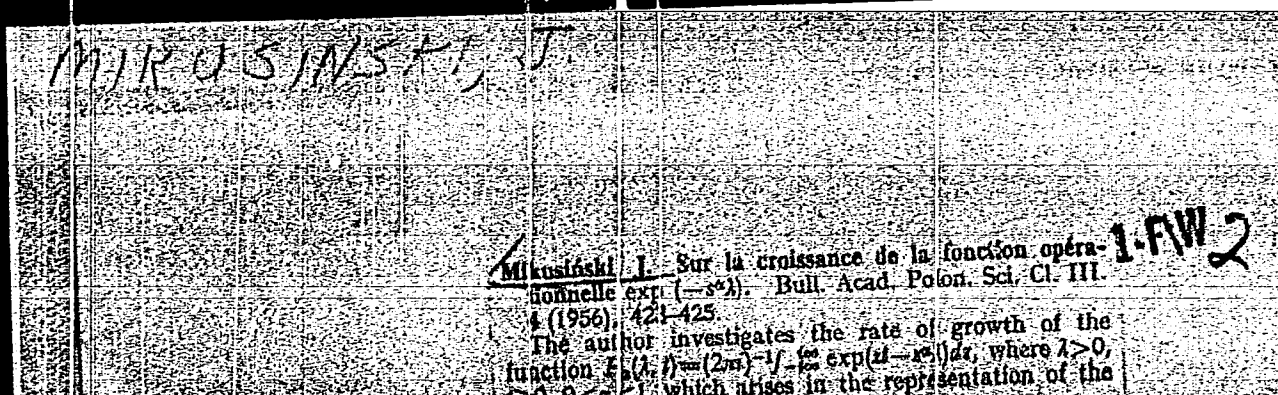*I. Halperin* (Kingston, Ont.).
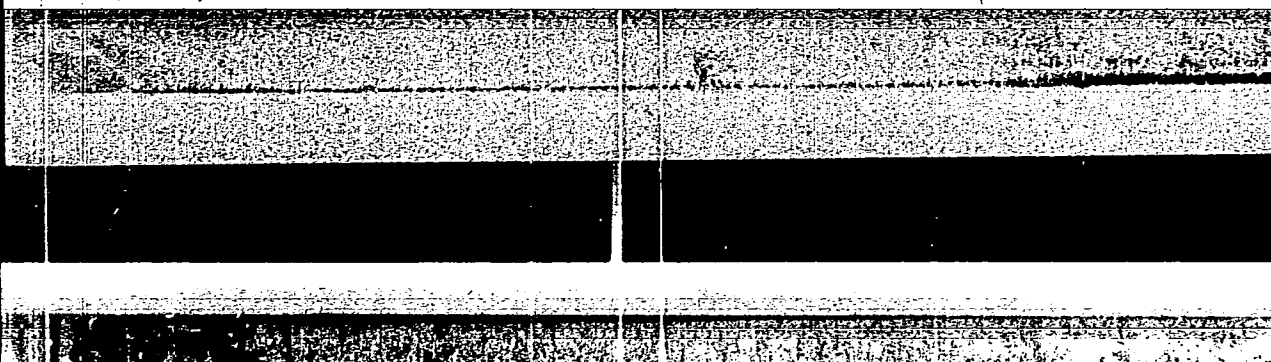
MIKUSINSKI J.

MIKUSINSKI, J.

Mikusiński, J. **Équations différentielles à coefficients constantes considérées dans les espaces linéaires généraux.** Bull. Acad. Polon. Sci. Cl. III. 4 (1956), 137–139.

This note announces without proof some theorems about the number of linearly independent solutions of equations of the type described in the title. Details are contained in the paper reviewed below. There is no topo-

logy assumed, and differentiation is a postulated operation. An equation of order n can have fewer than n independent solutions. The main theorem deals with conditions which insure the existence of n solutions.
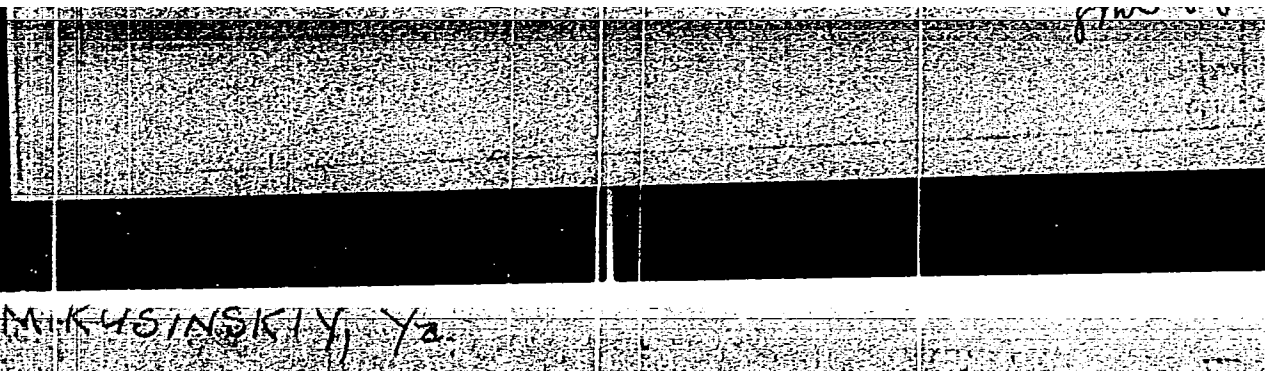
A. E. Taylor (Los Angeles, Calif.).

MIKUSINSKI, J.

Mikusiński J. Sur la croissance de la fonction opéra- 1·FW 2
tionnelle exp $(-s^\lambda)$. Bull. Acad. Polon. Sci. Cl. III.
4 (1956), 423-425.
The author investigates the rate of growth of the
function $F(\lambda, t)=(2\pi i)^{-1} \int exp(zt-z^\lambda)dz$, where $\lambda>0$,
... which arises in the representation of the

M.KUSINSKIY, Ya.

Mikusinskii, Ya.— On the works of Polish mathematicians in the theory of generalized functions and in operational calculus
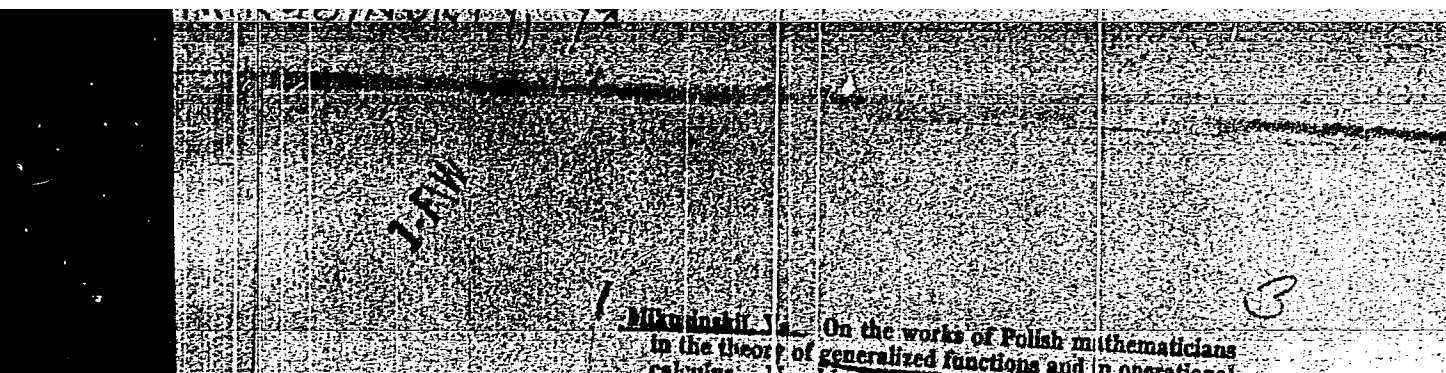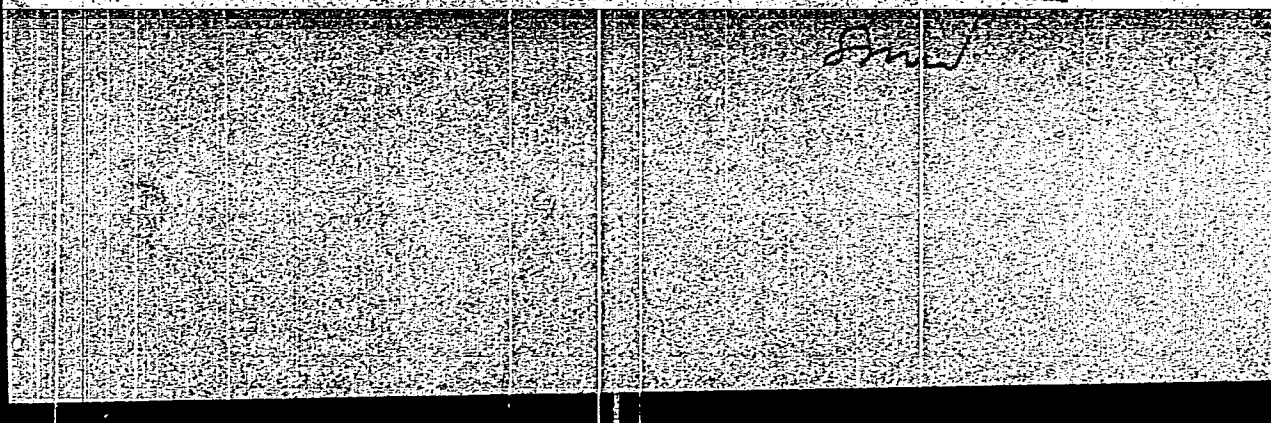
MIKUSINSKI, J.

Operational calculus of a closed interval. In French. p. 225.
(Studai Mathematica. Vol. 15, no. 2, 1956.)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 7, July 1957. Unc

MIKUSINSKI, JAN

SCIENCE

MIKUSINSKI, JAN. The elementary theory of distributions. Warszawa,
Panstwowe Wydawn. Naukowe. Rozprawy matematyczne. 12.
     Vol. 1. 1957. 52 p.
     MiU

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 5
                                         May 1959, Unclass.

Hartman, S.; i Mikusiński, J. Teoria miary i całki Lebesgue'a. [Theory of measure and Lebesgue integral.] Państwowe Wydawnictwo Naukowe, Warsaw, 1957, 140 pp. zł. 10.

This is a brief introduction to the Lebesgue integral such as might be given in slightly over a dozen lectures. Seven little chapters with suitable diagrams deal with the standard material on the line, using an approach suggested by M. Riesz. This is followed by five further short chapters on the classes L^p, series of orthogonal functions, plane measure, Fubini's theorem and on the definition of the elementary Stieltjes integral. The demand for books of this type appears to the reviewer to be somewhat on a par with that for books entitled 'Calculus made easy'. To the student already weary of mathematical exercises and routines it supplies little of lasting value. To the student ready to enter into a new world of ideas it supplies a meager and commonplace fare. L. C. Young.

i.6(1)   PHASE I BOOK EXPLOITATION   POL/2493

Mikusinski, Jan

Wstęp do analizy matematycznej (Introduction to Mathematical Analysis)
    Warsaw, PWN, 1957.   264 p.   Errata slip inserted.   10,130 copies
    printed.

Eds.:   Witold Kleiner and Zofia Ziolkowska; Tech. Ed.:   Wincenty Łysiak.

PURPOSE: This book is intended as a textbook in mathematical analysis
    for first-year mathematics students on the university level.   It
    may also be useful to engineers, scientific workers, and others.

COVERAGE: The book deals with basic concepts of mathematical analysis
    such as number, function, continuity, limit, etc.   The fundamentals
    of differential and integral calculus and the theory of sequences
    and series are presented.   The significant feature of the book is
    its original approach to and treatment of problems, which differ
    somewhat from the traditional methods.   The author thanks his col-
    leagues, A. Bielecki, C. Ryll-Nardzewski, and M. Warmus, for their
    assistance.   There are 6 references, all Polish.

Card 1/9

MIKUSINSKI, JAN.

Rachunek operatorow. Wyd. 2. rozsz. Warszawa, Panstwowe Wydawn. Naukowe, 1957. 374 p. (Poliska Akademia Nauk. Monografie matematyczne, t. 30) (Operational calculus. 2d enl. ed. bibl., diagrs. footnotes, index).   Poland

Mikusiński, J.; and Sikorski, R. The elementary theory of distributions. I. Rozprawy Mat. 12 (1957), 54 pp.

Distributions (in the sense of Schwartz and Sobolev) are defined as classes of equivalent fundamental sequences. A sequence $\{f_n\}$ of continuous functions on (a, b) is called fundamental if for some k there is a sequence $f_n^{(-k)}$ of antiderivatives of order k which converges almost uniformly on (a, b); $\{f_n\}$ is called equivalent to $\{g_n\}$ if there are sequences $\{f_n^{(-k)}\}$ and $\{g_n^{(-k)}\}$ which are almost uniformly convergent to the same function; a class of equivalent fundamental sequences is called a distribution (of finite order). This is essentially the definition given by the first author and, with considerably more detail, by the reviewer [for references see the preceding reviews].

The authors give an excellent treatment of the elementary theory of distributions of finite order, which should be of great value to physicists and engineers. This first installment deals with the following topics: derivatives of distributions, distributions as derivatives of continuous functions, convergence of sequences and series of distributions, multiplication of distributions by infinitely differentiable functions, the distribution $f(\varphi)$, where f is a distribution and φ an infinitely differentiable function, integrable functions and functions with poles as distributions, local equality of distributions, the value of a distribution at a point, existence theorems for values, the value of a distribution at infinity, the definite integral of a distribution, periodic distributions.

The treatment is very similar to that given by the reviewer, with notable improvements where it deals with the value of a distribution at a point and the concepts depending on it. Here the authors follow the work of Łojasiewicz, Wloka and Zieleźny [Bull. Acad. Polon. Sci. Cl. III. 3 (1955) 479–481; MR 17, 594]. Thus the value of the distribution f at x_0 is defined as the limit for $\alpha \to \infty$ (if it exists in the sense of distributions) of $f(\alpha x + x_0)$; the definite integral $\int_a^b$ of the distribution f is the value at 0 (if it exists) of $\int_a^b f(x+t)dt = g(x+b) - g(x+a)$, where g is an antiderivative of f. $J.$ $Korevaar$ (Madison, Wis.)

MIKUSINSKI, J,

On the Linearly Independent solutions of a differential Equation with constant co-
efficients.

Mikusiński. J. Sur les solutions linéairement indépen-
dantes des équations différentielles à coefficients con-
stants. Studia Math. 16 (1957), 41–47.

Etude abstraite des équations différentielles à coeffi-
cients constant. Soit E un espace vectoriel sur un corps C
de caractéristique 0. Soit D un opérateur linéaire sur E,
appelé dérivation, tel que, pour tout polynome P de degré
n à une indéterminée à coefficients dans C, l'équation
différentielle $P(D)x=0$, $x \in E$, ait au plus n solutions in-
dépendantes. Soit d'autre part Λ un opérateur linéaire
sur E, tel que $D(\Lambda x)=\Lambda Dx+x$. Par exemple, C sera le
corps des complexes, E l'espace vectoriel des fonctions
analytiques d'une variable réelle t, D la dérivation
usuelle, Λ la mulplication par t.

Soit alors P un polynome, $\Pi_i P_i{}^{k_i}$ sa décomposition en
produit de polynomes irréductibles. (1) L'équation diffé-
rentielle $P_i(D)x=0$ a exactement $s_i=0$ ou n_i solutions in-
dépendantes, où n_i est le degré de P_i. Si $s_i=n_i$, soient $x_{i,p}$
de telles solutions indépendantes. 2) L'équation diffé-
rentielle $P_i{}^{k_i}(D)x=0$ a exactement $k_i s_i$ solutions indé-
pendantes; si $s_i=n_i$, on pourra prendre les $\Lambda^j x_{i,p}$ $(0 \leq j \leq k_i-1)$. 3) L'équation différentielle $P(D)x=0$ a exacte-
ment $\Sigma_i k_i s_i$ solutions indépendantes, qui peuvent s'ob-
tenir en prenant les précédentes pour les diverses valeurs
de i.

2

Ces résultats s'appliquent en particulier si C est le corps des opérateurs de Mikusiński [voir, e.g., Studia Math. 12 (1951), 227–270; MR 13, 751], E l'espace des fonctions indéfiniment dérivables d'une variable réelle t à valeurs dans C, D la dérivation en t, et A la multiplication par t.

L. Schwartz (Paris).

MIKUSINSKIY, Ya.

DROBOT, S.; MIKUSINSKIY, Ya.

Shearing-stress operator and its application to the statics of beams. Usp.mat.nauk 13 no.2:73-92 Mr-Ap '58.   (MIRA 11:4)
(Operators (Mathematics))
(Girders)

MIKUSINSKI, J.

On the convolution by $\exp(t^2)$. Bul Ac Pol mat 7 no.11:669-671 '59.
(EEAI 9:10)
1. Instytut Matematyczny PAN. Presente par A.Mostowski.
   (Functions)   (Calculus, Operational)

MIKUSINSKI, J.

A simple demonstration of the Titchmarsh convolution theorem. Bul
Ac Pol mat 7 no.12:715-717 '59.   (EEAI 9:10)

1. Instytut Matematyczny PAN. Presente par K.Kuratowski.
    (Functions)

PHASE I BOOK EXPLOITATION   POL/4356

Polskie towarzystwo matematyczne

Prace Matematyczne, Seria I, IV (Mathematical Transactions, Series I, vol.IV)/Warsaw, Panstwowe wyd-wo naukowe, 1960. 180 p. 1,075 copies printed.

Editorial Board: Wladyslaw Orlicz (Chief Ed.), Marceli Stark, (Deputy Chief Ed.), Adam Bielecki, Witold Bogdanowicz, Stanislaw Golab, Jerzy Gorski, Stanislaw Hartman, Julian Musielak (Secretary), Zbigniew Semadeni, and Krzysztof Tatarkiewicz.

PURPOSE: This book is intended for mathematicians.

COVERAGE: This is a collection of 12 articles dealing with algebra, analysis, theory of numbers, probability theory, and geometry. Summaries in Russian and English or Russian and French are given after each article. No personalities are mentioned. References follow most of the articles.

Drabowski, K. (Lodz). On Certain Infinite Series Connected With Bessel Functions   29

Schinzel, A. (Warsaw). On the Diophantine Equation   45
$$\sum_{i=1}^{n} A_i x_i^{\beta_i} k_i = 0$$

Schinzel, A. (Warsaw). On the Equation $x^4 + ux^2 y^2 + by^4 = z^2$ 53
Card 2/4

Hartman, J. (Warsaw) and S. Sierpkowski (Wroclaw). Hausdorff's Theorem on Convolution and the Theory of Refrency   59

Badrikian, ... On the Convergence of a Sequence of Numbers to the Limit of the Set   77

Szmielew, L. (Wroclaw). A Certain Characterization of Straight Line Among Plane Graphs   83

Jedrzyk, T. M. (Poznan). On a Certain Generalized Problem of Fourier for a Normal Parabolic Equation   91

Rybik, L. (Warsaw). On the Limit Distributions of Sums of r-Valued Random Variables   111

Reports from Scientific Sessions at the Polish Mathematical Society (For the Period 1 July 1957 to 30 June 1958):
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Poznan section   129
Szczecin section   131
Torun section   133
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Wroclaw section   137

AVAILABLE: Library of Congress

Card 3/4

MIKUSINSKI, J.

On the value of a distribution at a point. Bul Ac Pol mat 8 no.10: 681-683 '60.

1. Institute of Mathematics, Polish Academy of Sciences. Presented by A. Mostowski.

(Distribution (Probability theory))   (Aggregates)

MIKUSINSKI, J. (Katowice)

On the tetrahedron. Roos wiad matem 5:39-42 '61.

MIKUSINSKI, J. (Warssawa)

Convolution of functions of several variables. Studia math 20 no.3:
301-312 '61.

(Functional analysis)

MIKUSINSKI, J.; SIKORSKI, R.

The elementary theory of distributions.(II) Rozpr matemat
25:1-46 '61.

1. Polska Akademia Nauk, Instytut Matematyczny, Warszawa.

MIKUSINSKI, J.; SIKORSKI, R.

The elementary theory of distributions. II.   Rozprawy matemat. 25-3-47 '61

MIKUSINSKI,Jan, Prof.Dr.

On a tempered keyboard. Problemy 18 no.1:54-56 '62

MIKUSINSKI, J. (Warszawa)

Criteria of the existence and of the associativity of the product of distributions. Studia math 21 no.3:253-259 '62.

MIKUSINSKI, J. (Katowice)

Analytic functions of polynomial growth. Studia math 22 no.1:7-13
'62.

MIKUSINSKIY, Ya.[Mikusinski, J.]; SIKORSKIY, R.[Sikorski, R.];
   SHIROKOV,F. [translator]; PRIDANTSEVA, S.V., tekhn.
   red.

[Elementary theory of generalized functions] Elementarnaia
teoriia obobshchennykh funktsii. Moskva, Izd-vo inostr.
lit-ry. No.2. 1963. 67 p.   (MIRA 17:2)

MIKUSINSKI, J.; SCHINZEL, A. (Warszawa)

Reducibility of certain trinomials. Acta arithmetica 9
no.1:91-95 '64.

KIERAT, W.; MIKUSINSKI, J. (Katowice)

A theorem of operational calculus of finite interval. Studia
math 25 no.1:93-96 '64.

1. Submitted March 16, 1964.

MIKUSINSKI, W.

Competition agreement of the Clothing Center with the Provincial Administratio of Village Cooperatives, p. 1. (ROLNIK SPOLDZIELCA, Warszawa, Vol. 8, no. 12, Mar. 19!

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 6, Jun. 1955.

Uncl.

MIKUSKA, J.

Effect of air entraining on resistance and durability of
concrete. p. 2. INZENYRSKE STAVBY. (Ministerstvo
stavebnictvi) Praha.
Vol. 4, no. 1, Jan. 1956.

SOURCE: EEAL   LC   Vol. 5, no. 10   Oct. 1956

MIKUSKA, Jozsef

Observations on the Ludas Lake in Vojvodina. Aquila 69/70:
278 '62-'63 [publ. '64].

MIKUSKA, Jozsef; JAKAB, Andras; AUMULLER, Istvan; PORGA, Zoltan; GYORY, Jeno;
    PATKAI, Imre, dr.; SCHAFER, Lajos; BERETZK, Peter, dr.; GEREBI, Gyorgy

Rare goose and duck occurrences. Aquila 69/70:257-258 '62-'63
[publ. '64].

MIKUT-SOROKHTINA, O.P.

Electrophysiological analysis of function of venous thermoreceptors.
Fiziol. zh. SSSR 39 no.2:210-217 Mar-Apr 1953.   (CLML 24:3)

1. Department of Normal Physiology, Khabarovsk Medical Institute.

ZUYUS, I.; MIKUTA, A.

Organization of patent work in the Baltic republics. NTI
no.7:3-7 '65.   (MIRA 18:9)

MIKUTA,Marian, mgr.

The Club of Creative Work in Katowice City. Problemy 18 no.1:68
'62

1. Dyrektor Klubu Pracy Tworczej, Katowice.

MIKUTA, V.I. (Novosibirsk); NOVIKOV, B.G. (Novosibirsk)

Circular flow around objects with arbitrary prof: les.
PMTF no.3:97-101 S-O '60.   (MIRA 14:7)

1. Institut gidrodinamiki Sibirskogo otdeleniya AN SSSR.
            (Laminar flow)
            (Hydrodynamics)

MIKUTASZEK, E.

The **toxin of Shiga's dysentery bacillus**. E. Mikutaszek and K. Ostrowski (School Med., Warsaw, Poland). Bull. acad. polon. sci, (Warsaw), Classe II, 1, 27-30(1953) (in English).—By means of solvent extns. and isoelec. point pptn. or alc. fractionation, normal and variant forms of dysentery bacteria were sepd. into several fractions, viz.: protein ectotoxin (I), nucleoprotein (II), endotoxic poly-mol. symplex (III), polysaccharide 1 from the symplex (IV), 66% alc. precipitable, polysaccharide 2 from the symplex. (V), 85% alc. precipitable, and protein from the symplex (VI). All these fractions contained protein (ranging from 0.7 to 12.6% as N), P (0.9 to 1.7%), and nucleic acid (1 to 6%). Nucleic acids combined in cells with proteins as well as with polysaccharides. I had slow neurotropic action, whereas III caused rapid intestinal symptoms in exptl. animals. The toxicity of I was much higher than that of III. LD₅₀ of endotoxin from smooth (S) and rough (R) strains was 0.01 mg. and 0.05 mg., resp. In pptn. reaction with horse serum immunized with a mixt. of S and R strains, the activity of the various polysaccharide fractions of *Shigella shigae*, S strain, was: V > III > the polysaccharide obtained from the bacterial residue after alk. hydrolysis > IV (completely inactive); and that of the various protein fractions was: I > II > VI. The last fact was perhaps due to denaturation of the protein during the processing. No marked difference in the pptn. activity was observed in the protein fractions between S and R strains. However, the only polysaccharide fraction with a significant precipitinogen activity from R strains was the basic polysaccharide from the residue, whereas III, IV, and V showed little or no activity. I, from both R and S strains, gave a strong reaction only with antiectotoxic serum while the antiendotoxic serum reacted with endotoxins from S strains. Antiectotoxic rabbit serum showed a strong protecting action on mice.
——T. E. King

ZORIN, A. B.; MIKUTENOK, M. A.

Possibility of re-transfusion of the blood during surgical
operations. Probl. gemat. i perel. krovi no.1:19-23 '62.
(MIRA 15:7)

1. Iz kliniki khirurgii dlya usovershenstvovaniya vrachey No. 1
(nach. - deystvitel'nyy chlen AMN SSSR prof. P. A. Kupriyanov)
Voyenno-meditsinskoy ordena Lenina akademii imeni S. M. Kirova.

(BLOOD--TRANSFUSION)   (SURGERY, OPERATIVE)

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S/065/61/000/008/008/009
E194/E135

AUTHORS: Demchenko, V.S., Morozov, G.A., Ivanov, L.F., and
              Mikutenok, Yu.A.

TITLE: Assessment of the lacquer forming tendencies of
              lubricating oils

PERIODICAL: Khimiya i tekhnologiya topliv i masel,
              1961, No.8, pp. 53-58

TEXT: The authors discuss laboratory tests for assessing the
effectiveness of multi-functional additives in heavy duty diesel
engine lubricants. One method that has been proposed is due to
K.K. Papok; it has been described in ГOCT (GOST) 4953-49.
Later the test was modernised and issued as GOST 9352-60. A very
interesting method was described by S.K. Kyuregyan in his
dissertation of 1959. Kyuregyan's apparatus preserves all the
positive features of the revised Papok method and makes it
possible to oxidise the oil in a thin layer on sliding metal
surfaces. The present article gives test results with different
lubricants on both instruments (Papok and Kyuregyan). The tests
were made with lubricant MT-16 (MT-16) made from Emba crude at
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the Mendeleyev refinery and grade ДC-11 (DS-11) of high sulphur
crude at the Novo-Kuybyshev refinery. The tests were made with
experimental additives received from the VNII NP (All-Union
Scientific Research Institute of the Petroleum Industry). In the
Papok instrument to GOST 9352-60 the thermal and oxidation
stability is expressed as the time in minutes during which the oil
is converted to a lacquer residue under the test conditions. The
lacquering tendency is also measured by the amount of lacquer
formed at the end of the test time. Kyuregyan's instrument is
illustrated in Fig.1. The oil sample is a thin (0.1 mm) layer on
a ground steel ring 7, placed on a rotating plate 6 which is
heated to a given temperature, and the time required for the oil
to lose its lubricating properties by evaporation and lacquer
formation is measured. The test is continued until there is a
sharp increase in the angle of rotation of the loading disc 9,
which is supported from the test ring by three aluminium (or iron
or brass) supports 8 and is connected by the shaft 10 to the
damper 11 and spring 12 which prevent the disc 9 from
turning during the test. The time in minutes during which, under

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the test conditions, the oil loses its lubricating properties and
is converted into a lacquer film is termed the lacquer formation
time. The test results show that the ratio of the Kyuregyan
lacquer formation time to the Papok thermal-oxidation stability is
not a constant one but the order of rating of the different base
oils with and without additives is the same in the two tests.
In carrying out tests on the Kyuregyan instrument it was found that
the curve of change of angle of rotation of the loading disc with
time is different for different specimens. The form of this curve
was found to depend primarily on the intensity of the accumulation
of oxidation products in the oil. The significance of the shape of
this curve was studied by making tests with different kinds of
additives including the following and their components:
thiophosphorus containing types ДФ-1 (DF-1), ИП-22 (IP-22), В-353
(V-353), В-354 (V-354) and ЗИТ-1 (ZIT-1). Alkyl-phenolic types
В-350 (V-350), АзНИИ-7 (AzNII-7). Sulphonate types АзНИИ-5
(AzNII-5) and ПМС-19 (PMS-19). Some of the additives tested
were mixtures of thiophosphorus containing compounds and alkyl-
phenols. Thus additive В-360 (V-360) consists of the components

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of V-350 and V-354.   Additive β-361 (V-361) is made up of V-350 and V-353.   Additive A3-НИИ-8 (Az-NII-8) is produced by mixing sulphurised alkyl-phenolate of barium (additive A3НИИ-7 (AzNII-7) and barium sulphonate (the surface active component of additive A3НИИ-5 (AzNII-5).   The additives containing thiophosphorus compounds, which are good anti-oxidants, gave slow reduction in the angle of rotation of the disc in the early part of the test. Oils with alkyl phenols and sulphonates show a marked reduction in the angle of rotation of the disc because these are not anti-oxidant additives and oxidation products are formed from the start of the test.   It was found that additives containing thiophosphorus compounds are the best suppressors of lacquer formation. Particularly good results were obtained by adding to the oil an ester of thiophosphoric acid (component V-353) and zinc dithio-phosphate (component V-354).   The influence of sulphonate additives and mixtures of sulphonate with alkyl phenol is much less but is greater with some feed stocks than with others. Additives and components of the alkyl phenol type (V-350 and AzNII-7) are intermediate in their ability to improve the stability

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of a thin layer of oil. Test results obtained on a Kyuregyan
instrument were in satisfactory agreement with the results of
engine tests.
There are 3 figures, 1 table and 5 Soviet references.

Card 5/6

MIKUTIS, V.I.

Modernization of vertical boring and turning machines. Vest.mash.36 no.7:66-67 Jl '56.   (MIRA 9:9)
                    (Machine tools)

MIKUTS, I.A.; REZEKINA, M.M.

Pneumatic attachment for drilling machines. Mashinostroitel'
no.11:19 N '63.

MIKUTSKAYa, B. A., Cand Med Sci — (diss) "Epidemiological, micro-iological

and immunological chara:teristics of anginas connected and unconnected with

scarlet fever," Leningrad, 1960, 30 pp (First Leningrad Medical Institute im

Acad. I. P. Pavlov) (KL, 33-60, 147)

LUZYANINA, T.Ya.; SMORODINTSEV, A.A.; MIKUTSKAYA, B.A.

Immunogenic and reactogenic properties of live tissue culture anti-mumps vaccine. Acta virol. (Praha)[Eng] 7 no.6:562 '63.

1. Dept. of Virology, Institute of Experimental Medicine, U.S.S.R. Academy of Medical Sciences, Leningrad.
        (MUMPS)   (VACCINATION) (ANTIBODY FORMATION)

MIKUTSKAYA, B.A.; LAKOTKINA, O.Yu.; MOTUZENKO, Z.Ya.; BOBROVA, V.G.;
VAYNSHTEYN, A.M.; FREYDOVICH, A.N.; OSHEROVICH, A.M.

Epidemiological effectiveness of immunization with glyceroformol
streptococcal polyvalent vaccine. Zhur. mikrobiol., epid. i immun.
41 no.9:36-42 S '64.   (MIRA 18:4)

1. Institut epidemiologii, mikrobiologi i gigiyeny imeni Pastera,
Nauchno-issle ovatel'skiy institut okha, nosa, gorla i rechi i
Nauchno-issledovatel'skiy pediatricheskiy institut, Leningrad.

SELIVANOV, A. A.; SMORODINTSEV, A. A.; MOROZENKO, M. A.; MIKUTSKAYA, B. A.; PLESHANOVA, F

"Data on the study of reaction- and immunity- producing properties of attenuated strains of the adenovirus and parainfluenza group."

Part II of paper presented at Symp on Applied Virology, Boca Raton, Fla., 30 Nov- 2 Dec 64.

Div of Virology, Inst of Experimental Medicine, AMS USSR, Leningrad.

SMORODINTSEV, A.A.; IUZYANINA, T. Ya.; MIKUTSKAYA, B.A.

Data on the efficiency of live mumps vaccine from chick embryo cell cultures. Acta virol. (Praha) [Eng] 9 no.3:240-247 My'65.

1. Department of Virology, Institute of Experimental Medicine, U.S.S.R., Academy of Medical Sciences, Leningrad.

ALEKSANDROVA, G.I.; MIKUTSKAYA, B.A.; PLESHANOVA, R.A.; PANOVA, N.G ;
     SMORODINTSEV, A.A.

Reactogenic and immunogenic properties and epidemiologic effec-
tiveness of extra attenuated vaccinal strains of the influenza
virus (observations in children of preschool age). Vop. virus.
10 no.1:67-73 Ja-F '65.   (MIRA 18:5)

1. Otdel virusologii Instituta eksperimental'noy meditsiny AMN
SSSR, Leningrad.

MIKUTSKIY, G. V.

USSR/Radio, Frequency Modulation
Radio, Wired   Aug 1947

"Use of Frequency Modulation for Communication on Electric Transmission Lines," G. V. Mikutskiy, 7 pp

"Elektrichestvo" No 8

The author discusses laboratory and practical data obtained by using FM on high-voltage transmission lines. Compares the results with the results obtained from using AM on such transmission lines. Discusses the general principles and advantages of FM and states certain particulars on where FM can be used for high-frequency communications on electric transmission lines. Experiments conducted at the

Central Research and Investigation Laboratory on Electro-Technique of the Ministry of Electric Stations of the USSR.

22797

MIKUTSKIY, G.V.

USSR/Electricity

Safety Devices, High Frequency
Circuits

Nov/Dec 1947

*Differential-Phase High Frequency Safeguards," G. I. Atabekov, G.V. Mikutskiy, 11 pp

"Avtomatika i Telemekh" Vol VIII, No 6

Summarizes several articles on this subject. Authors give classification of the circuit systems of high frequency safeguards, based on principle of differential phase. Briefly describe the circuits and critically analyze systems developed in Soviet Union and in foreign countries. Discuss the KRZ-151 safeguard developed by Pleshko, Long's safeguard, those produced by Westinghouse and General Electric.

PA 50T1

MIKUTSKIY, G. V.

"French System of Hi h Frequency Differential-Phase Protections," (Bk.) Engr.

MIKUTSKIY, G. V.

"A Tube Millisecondometer," Elek. Stan., No. 2, 1949. Cand. Tech. Sci.

Protection

621.316.925 : 621.315.052.63

3223. Comparison of "differential phase" high-frequency protection system with receiver-transmitter model PVZ. (L. V. Mazurov. *Elekt. St.*, No. 1, 26–9 (1952) *In Russian*.

To use receiver-transmitters of new design, the differential phase system equipment was modified. Principles are given to enable existing equipment to be modernized [see Abstr. 1013 (1950)].

A. LUKASZEWICZ

MIKUTSKIY, G.V.

USSR/Electronics - Power-Line
Carrier
Capacitors

Sep/Oct 52

256T67

"Devices /Coupling Capacitors and Line-Tuning
Units/ for Connecting Carrier Equipment to
Power Transmission Lines," Ya.L. Bykhovskiy
and G.V. Mikutskiy, Central Sci-Res Elec Eng
Lab, Min Elec Power Stas

Avtomat i Telemekh, Vol 13, No 5, pp 560-571

Discusses elements for connecting carrier equip-
ment to power transmission lines with consider-
ation for the mismatches caused by the necessity

256T67

for transmitting a wide band of frequencies
through high-voltage capacitors with low
capacitance. Gives characteristics of type
OFP-4 line-tuning unit and recommends measures
to improve efficiency of units in connecting
carrier equipment to 110-, 220-, and 400-kv
transmission lines. Submitted 20 Aug 51

621.315.052.63 : 621.316.9

H.F. CHANNELS OF DIFFERENTIAL-PHASE PROTECTION OF THE OPERATION OF THE OF LONG TRANSMISSION LINES, O.V. Mikudail.
Elektrichestvo, 1956, No. 4, (3-51. In Russian.

Type DF2-2 differential-phase protection (see Abstr. 3118/1955) is operated usually at frequencies below 70 c/s and the signals reflected at the receiving end of the line influence the operation of the h.f. channels considerably. Since the receivers of the protection system must have a pass-band of 1300-1400 c/s the coupling between the receiver h.f. circuits must exceed the critical value. The form of the envelope of the rectangular pulses on the output side is thereby distorted and it may assume a beat character or split up into primary and secondary pulses. This must be ...

B. F. Kraus

Cent. Sci. Res. Electrotech. Lab., Min. Electro Station

621.315.052.63 : 621.317.341
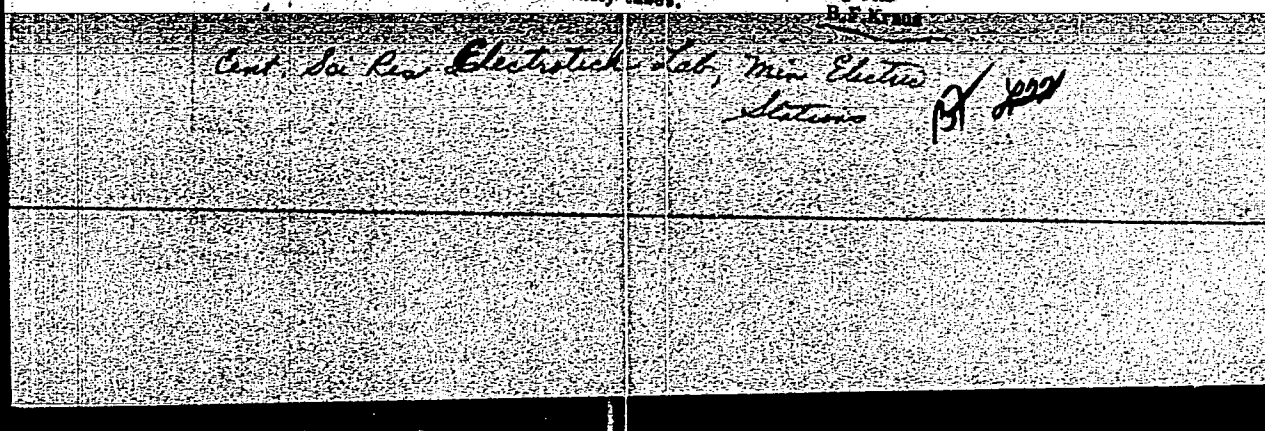
871.   MEASUREMENT OF HIGH-FREQUENCY PARAMETERS OF
110 AND 220 kV LINES. O.V. MIKHAIL
Elekt. Stantsii, 1956, No. 9, 33-8. In Russian.
    Results of line—earth and line—line attenuation measurements
are given for a 157.2 km long 220 kV line and a 59.3 km long
110 kV line, for frequencies from 30 to 500 kc/s, with the other two
conductors either open-circuited or earthed at both ends. Results of
a comparison of the attenuation of the 110 kV line with or without
transposition in four points are also discussed and tabulated.
                                                    F. Busemann

MIKUTSKIY G. V.

LINE MATERIALS

"Parameters of Circuits for Voltage Pickoff From Coupling Capacitors" by Candidate of Technical Sciences G. V. Mikutskiy. Elektricheskiye Stantsii, No. 6, June 1957, Pages 49 -- 51.

Coupling capacitors are frequently used to supply reduced voltages for relaying in 110 and 220 kv lines, as well as for carrier current purposes. The author discusses the efficiency and the safety of several variants of such capacitors and the associated circuitry.

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MIKUISKIY,G.V.

BYKHOVSKIY, Ya.L., kand.tekhn.nauk; MIKUTSKIY, G.V., kand.tekhn.nauk.

High-frequency parameters of the 220 kv. line of the Kama Hydro-
electric Power Station - Sverdlovsk. Elek.sta. 28 no.8:51-53
Ag '57.   (MIRA 10:10)
                        (Kama Hydroelectric Power Station)

MIKUTSKIY, G.V., kand.tekhn.nauk

Measurement of the high-frequency parameters of a 35 kv. power transmission line. Trudy VNIIE no.7:220-225 '58.

Line filters for high-frequency communication apparatus, remote control, and electric protection.   Ibid.:275-294

Calculation of high-frequency transformers with steel cores. Ibid.:306-314   (MIRA 16:12)

AUTHOR: Mikutskiy, G. V. (Moscow)   103-19-7-8/9

TITLE: Analysis of Various Circuits for   Wide-Band
                 Tuning of High Frequency Filters (Analiz razlichnykh
                 skhem shirokopolosnoy nastroyki vysokochastotnykh
                 zagraditeley)

PERIODICAL: Avtomatika i telemekhanika, 1958, Vol. 19, Nr 7,
                 pp 708-716 (USSR)

ABSTRACT: An analysis of various circuits for a wide-band tuning
                 of the filters is given and a comparison between a
                 wide-band and a common single-frequency tuning is made.
                 It is shown that in the computation of the fading
                 introduced by the filter one should assume the most
                 unfavourable case, i. e., the input resistance of the
                 substation is taken either equal to zero or equal to
                 that quantity which completely can compensate the
                 inductive component of the total resistance of the filter.
                 Various schemes are examined: Single-frequency resonance
                 suppressors, wide-band filters constructed according to the
Card 1/2   circuit of a band filter, wide-band filters constructed

Analysis of Various Circuits for   Wide-Band   103-19-7-8/9
Tuning of High Frequency Filters

according to the circuit for harmonic frequency filters.
The dependence of the components of the total resistance
of the filters of 0.25 mH for various tuning circuits at
a frequency of f_m = 100 kc is shown. It is shown that in
case of a tolerable amount of the capacitive reactance of
250 ohm all tuning circuits result about the same filter
band according to the capacitive component. The band width
of the filter according to the effective component of the
total resistance is considerably larger in case of a wide-
-band tuning than in the case of a common resonance circuit.
In case of high inductivity of the power coil the scheme
for the harmonic frequency filter gives the widest filter
band. Besides the electric characteristics also the
difficulties of the construction of the various circuits
and the operation safety must be considered. There are 9
figures and 4 references, 3 of which are Soviet.

SUBMITTED: April 12, 1957
Card 2/2   1. Electric circuits--Analysis   2. High frequency filters--
              Performance

8(2); 9(2)   PHASE I BOOK EXPLOITATION   SOV/2409

Mikutskiy, Genrikh Vikent'yevich

Vysokochastotnyye kanaly releynoy zashchity (High-Frequency Channels
    of Relay Protective Systems) Moscow, Gosenergoizdat, 1959. 271
    p. 8,300 copies printed.

Ed.: Ya.L. Bykhovskiy; Tech. Ed.: G.Ye. Larionov.

PURPOSE: This book is intended for engineering and technical per-
    sonnel engaged in the design and operation of high-frequency
    channels of relay protective systems.

COVERAGE: The author discusses the construction and operation of
    high-frequency channels of relay protective systems for electrical
    transmission lines. He describes principles of operation and
    characteristics of basic elements of high-frequency channels and
    analyzes conditions for operation. He discusses transmission of
    high-frequency currents by means of three-phase transmission
    lines, high-frequency band-elimination filters, coupling capacitor

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and filters, high-frequency cables, PVZK transceivers and PVZ-400
transceivers for 400 kw lines. Such problems in the design of
high-frequency channels as the selection of frequencies, design of
switching circuits, wiring of equipment, etc., are not included.
The author mentions the following personalities who contributed
to the development of high-frequency channels and components
of protective systems: V.I. Ivanov, P.I. Ryzhov, A.M. Kruglyakov,
N.R. Rybakov, V.I. Leonov and G.Ya. Lion of Mosenergo, M.N.
Pantin of Lenenergo, M.A. Zhurochko of Sverdlovenergo, V.F.
Karateyev of Donbassenergo, V.M. Mogil'nitskiy of Rostovenergo,
and N.P. Krasovitskiy and V.G. Kagan. The following organizations
also contributed to the development: VNIIE, TEP and ENIN AN. The
author thanks I.S. Zvenigorodskiy, Ya.L. Bykhovskiy and G.I.
Lion for reviewing the manuscript. There are 38 references: 31
Soviet (including 2 translations), 5 English, 1 German and 1
French.

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High-Frequency (Cont.)   SOV/2409

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MIKUTSKIY, G. V., SAPIR, Ye. D., FABRIKANT, Valentin L., FEDOSEYEV, A. M., IVAN., ..

"Relay protection with semi-conductor devices"

report to be submitted for Intl. Conference on Large Electric Systems (CIGRE), 18th Biennial Session, Paris, France, 15-25 Jun 60.

86642

9,988/

S/104/60/000/007/002/002
E194/E455

AUTHORS: Ivanov, V.I., Doctor of Technical Sciences,
             Mikutskiy, G.V., Candidate of Technical Sciences,
             Sapir, Ye.D., Candidate of Technical Sciences,
             Fabrikant, V.L., Doctor of Technical Sciences and
             Fedoseyev, A.M., Doctor of Technical Sciences

TITLE: Relay Protective Equipment Based on Transistor
             Instruments

PERIODICAL: Elektricheskiye Stantsii, 1960, No.7, pp.59-64

TEXT: By the use of semiconductor diodes and triodes and also
magnetic components, measuring devices and logical parts of
protective circuits may be constructed without contacts.   Devices
responding to the ratio of two electrical magnitudes are often
required.   They can be made of semiconductor rectifiers or may be
based on the principle of comparing the absolute or the phase value:
of electrical magnitudes.   Absolute values may be compared by
rectifying and smoothing them and then, using a relay of high
sensitivity, to detect the difference between them.   With
transistors, it has been possible to develop circuit elements with
d.c. rectifiers that react to differences between the magnitudes

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compared, and operate other parts of the circuit.   The Hall and
magneto-restrictive effects may also be used to compare the phase
of two electrical magnitudes.   High-speed relays may, however,
react to the alternating double-frequency component of the Hall emf,
It is accordingly necessary to eliminate this component, by the use
of filters or special compensating circuits.   Two circuits were
constructed around two identical Hall emitters, the alternating
components of Hall emf being cancelled and the constant components
summated.   In the second method, the crystal rectifier of one
pick-up passes current induced in an additional winding by the
flux of the second pick-up.   The flux is set up by one of the
electrical magnitudes to be compared.   Conversely, the current of
the second pick-up induces a flux in the first set up by the second
electrical magnitude.   An expression is given for the resultant
emf.   In this way, the relay may be made to operate reliably under
various circuit conditions.   Relays may also make use of the
dependence of the resistance of semiconductor elements on the
intensity of the magnetic field in which they are located.   This

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effect is particularly marked if the semiconductor elements are in
the shape of discs.   The principles underlying a relay of this
type are briefly explained and a schematic circuit diagram of a
voltage relay is shown in Fig.4.   Multi-phase resistance relays
have been proposed for remote control.   Such a relay reacts to
all kinds of multi-phase short-circuits, or at any rate to most of
with without opening or closing contacts.   Contactless relay
systems have been built up in this way.   The time-delay elements
are usually of the capacitor charging type.   Phase differential
high-frequency protective relays are then described.   Two methods
of protection have been devised that differ in the method of making
the phase comparison of currents at the ends of the protected line.
One of these methods, due to Candidate of Technical Sciences
O.V.Mamontov (see Elektricheskiye Stantsii, 1958, No.5),uses the
impulse method of comparing the current phases and was installed in
1958 in experimental service on a 220 kV line.   In the other
system, the current phases at the ends of the protective lines are
compared by means of an integrating circuit, shown as a block

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diagram in Fig.6.   The operation of this circuit is explained.
A directional high-frequency protective circuit is described with
a block circuit diagram in Fig.7.   It was developed by Candidate
of Technical Sciences Ya.M.Smorodinskiy and Engineers O.D.Velichkin,
Ye.V.Lysenko and V.P.Kletskiy and uses semiconductor diodes and
triodes.   If the line is not provided with lightning arresters,
so that use can be made of protective systems with an operating
time of less than 25 milliseconds, then only the main high-speed
part of the circuit is used.   The operating principle of the
circuit depends on rapid sensing of the direction of negative
phase-sequence power at the ends of the protected line and
comparison of these directions by means of a high-frequency channel.
For this purpose, the protective system uses high-speed double-
acting power-directional elements based on semiconductors.   Because
of the characteristics of lightning arresters, when they are used
the line protection must be delayed by 50 milliseconds.   Therefore,
it cannot be entirely based on instantaneous response to the sign
of the negative phase-sequence power as the asymmetry time may be

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much less than 50 milliseconds。   In this case the second part of
the circuit is used。   It contains a grid control element which
also responds to instantaneous measurement of the sign of the power
acting on the output relay of the protective circuit。   In the
event of asymmetrical damage to the protected line, the power-
directional elements on both ends of the line operate the output
protective relay.   A receiving-transmitting high-frequency
protective system is then described。   It is intended for operating
with a phase differential protective system。   A block circuit
diagram is given in Fig。8。   The emitter generator is based on a
triode and has a quartz frequency-stabiliser。   The operating
principles are explained； briefly, if there is no manipulation
voltage applied to the control cascade it is open and the
transmitter operates。   If power-frequency voltage appears on the
output of the manipulation elements this becomes blocked and the
transmitter is stopped。   The power of the high-frequency signal
beyond the line filter is 6。5 W in the frequency range of 30 to
250 kc/s。   The receiver contains an input high-frequency filter

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with a band-width of 1900 c/s, a high-frequency amplifier and detector and a d.c. amplifier. From the output of this amplifier the d.c. impulse is applied to the phase comparator circuit. The overload protection of the triodes of the output cascades of the transmitter is described. In 1958, a prototype of the transmitter-receiver based on transistors was put into service with a differential phase protection scheme type ДФЗ-2 (DFZ-2) on a 110 kV line of 60 km. The operating frequency of the protective channel was 210 kc/s and in 11 months service the performance was fully satisfactory. A method of differential protection with delay has been developed which differs from other systems in that the currents are rectified by a method that ensures selectivity and speed of operation. The reacting element of the protective system is a d.c. relay connected to the output of the comparator circuit, either directly or through a d.c. amplifier based on semiconductors. A common reacting element can be used for all three phases. Fig.10 gives a block circuit diagram of a protective circuit; the method of operation is briefly described. There are 11 figures and 3 Soviet references.
Card 6/6

MIKUTSKIY, G.V., kand. tekhn. nauk, laureat Leninskoy premii

High-frequency relay protection channels of superhigh-voltage lines.
Energetik 12 no.8:1-5 Ag '64.   (MIRA 17:9)

MIKUTSKIY, G.V., kand.tekhn.nauk

Study of impulse interference in high-frequency communication
channels using electric power transmission lines. Elektrichestvo
no.9:51-57 S '61.   (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektroenergetiki.
        (Electric power distribution) (Telecommunication)

S/271/63/000/002/019/030
A060/A126

AUTHORS: Mikutskiy, G. B., Skital'tsev, V. S.

TITLE: RF communication channels for power system automation

PERIODICAL: Referativnyy zhurnal, Avtomatika, Telemekhanika i Vychislitel'naya
              Tekhnika, no. 2, 1963, 84, abstract 2A508 (Tr. Vses. n.-i. in-ta
              elektroenerg. , 1961, no. 12, 46 - 63)

TEXT: The author considers certain problems of the operation of RF commu-
nication channels and remote control apparatus in electric power systems. The
transcievers for power posts are made of semiconductor devices and operate re-
liably for three years. The output power of the transmitter is about 4 w at a
carrier frequency of 200 kc. It consists of the transmitting generator with
quartz stabilization, a device for inertialess manipulation of power frequency
voltages, and a power amplifier. The output of the receiver is connected to the
phase comparator circuit of the relay assembly for phase-differential protection.
The remote switching devices should possess a high reliability. The two-frequency
principle is utilized: along the communication channel a voltage of control fre-

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RF communication channels for power system automation

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quency is sent continuously. During the transmission of a switching signal the former is taken off and a voltage at the operating frequency is transmitted. The correct operation of the automatic devices of the power system is ensured by the continuous measurement of the phase-shift angle of the station voltage and that at a specified point of the power system. The phase angle reproduction apparatus operates according to the principle of single side-band modulation and consists of a frequency modulation transmitter with a frequency detector. Electric transmission lines are used as the communication channels. There are 8 figures and 1 reference.

S. S.

[Abstracter's note: Complete translation]

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16.9500 (1031, 1132)
9.8300

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TITLE: New studies on high-frequency channels in telemechanics

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 2, 1961, 263-270

TEXT: A report is made here on studies conducted at the VNIIE on high-frequency channels in telemechanics. The first part describes an acoustic device of the type MT-A(MT-A). This apparatus makes use of semiconductors and is intended for the multiplexing of conductor circuits of high-frequency channels of various transmission systems. The relation $f_n = 450 + 180(n-1)$ (n = 1,...,16) holds for the 16 transmission frequencies. A narrow-band frequency modulation has been made use of to obtain a good noise-proof feature. The type described here differs from its predecessor by the use of semiconductors and in that emitter and receiver each have their own current feed. Figs. 1 and 2 show circuit diagrams of emitter and receiver. The second part of the present paper is devoted to high-frequency tele-

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phone systems. The high-frequency systems for telephone and telemechanical communications are made of new elements and intended for information transmission over high- or medium voltage lines. They are also suited for relay protection and automation systems. The units are made of semiconductors and miniature resistors, capacitors, and inductors, and require the use of output power tubes. The third part of the paper deals with remote switch systems. The purpose of such remote switch systems in power transmission systems is first explained, and it is stated that the transmission lines themselves can in most cases be used for the transmission of the switching signal. A two-frequency signal, a control frequency, and a signal frequency are regarded as the best suited. A diagram of the system concerned is discussed and shown to feature a filter for the suppression of noises having the frequency of the remote switch system. A power generating and transmission system is most conveniently controlled by controlling the phase in a central point of the whole system. The final part of the paper is devoted to the discussion of channels for the transmission of the phase relation within such a system, to the control unit. The system discussed is operated with a separate high-frequency

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channel over the transmission lines. The emitter consists of a crystal-controlled generator, a two-stage amplifier, a power amplifier, and an output filter. The emitter consists of an input amplifier with a high-frequency filter, a frequency converter, an intermediate filter, a discriminator, and a amplifier for industrial frequency. There are 9 figures and 1 Soviet-bloc reference.

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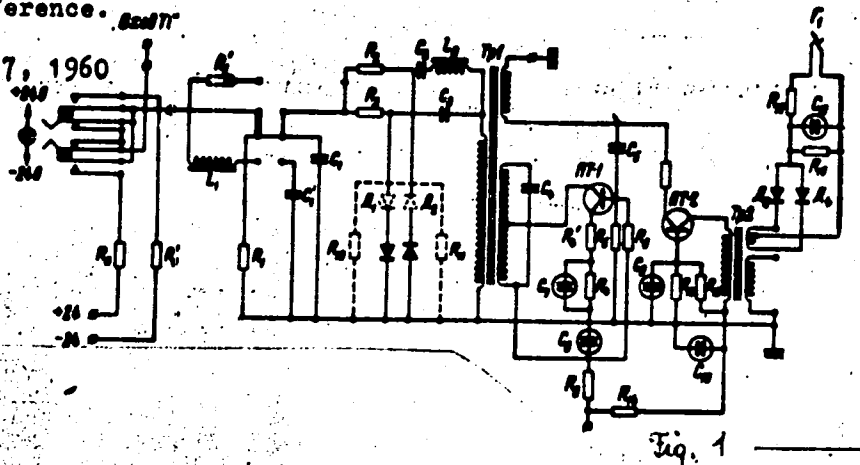
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Fig. 1

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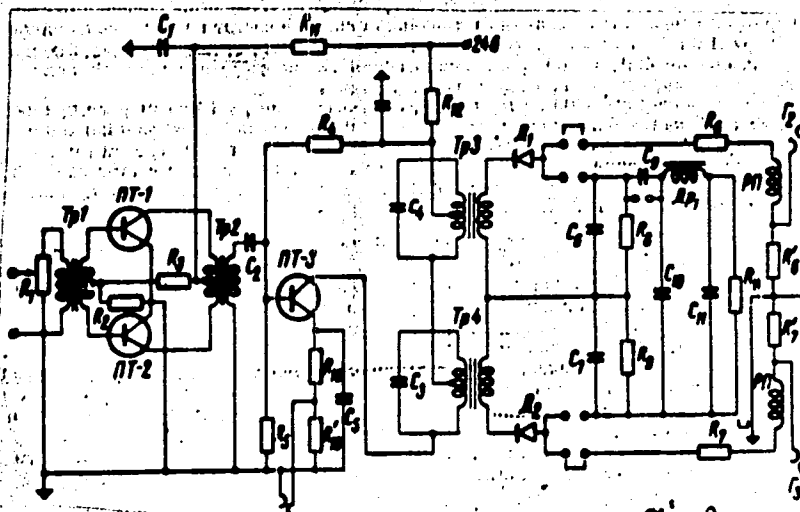s/103/61/022/002/014/015
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Fig. 2

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MIKUTSKIY, G.V., BYKOVSKIY, YA.L., ORLOV, V.N., SIDELNIKOV, V.V.

Characteristics of carrier current channels for teletransmission over power lines.

Report to be submitted for the 19th Biennial Session, Intl. Conf. on Large Electric Systems(CIGRE), Paris France, 16-26 May '62.

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        N.A., tekhn. red.

[Principles of the theory of high-frequency telecommunica-
tion using overhead power transmission lines] Osnovy teo-
rii vysokochastotnoi sviazi po liniiam elektroperedachi.
Moskva, Gosenergoizdat, 1963. 182 p.   (MIRA 16:11)
   (Telecommunication) (Electric lines--Overhead)